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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,610	08/25/2003	Qinbai Fan	GTI-1429-CIP	2842
33058	7590	02/27/2006	EXAMINER	
MARK E. FEJER GAS TECHNOLOGY INSTITUTE 1700 SOUTH MOUNT PROSPECT ROAD DES PLAINES, IL 60018			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/647,610

Applicant(s)

FAN ET AL.

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12-12-05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Remarks*

This Office action is responsive to applicant's amendment filed December 12, 2005.

Claims 1-17 are pending.

This Office action presents a new ground of rejection and is therefore made NON-FINAL.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10 and 12-17 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hornung et al. (U.S. Pat. 6,300,001 B1).

The rejection is maintained for the reasons of record. The present rejection relies on Hornung et al. insofar as the stainless steel disclosed by the patentees would naturally flow to

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have, inherently, an austenite phase as claimed, absent of a showing by applicant that the claimed invention distinguishes over the reference. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990) Indeed, the ASM Specialty Handbook provided for by applicant states that this alloy type of stainless steel is “attained through the liberal use of austenitizing elements such as nickel, manganese and nitrogen” which are disclosed in the steel alloy of Hornung et al. See col. 2 on page 2. Thus, it is asserted that the nickel, manganese and nitrogen present in the steel alloy disclosed by Hornung et al. would promote an austenite fcc structure as these elements are austenite stabilizers. Additionally, the alloy type disclosed in Hornung et al. is arguably of a higher austenitic phase than that claimed by applicant, as the claimed invention is drawn to an *absence of nitrogen*. (emphasis added)

Applicant’s assertion that *it is the structure of the stainless steel that determines the classification — not the composition* is acknowledged. (emphasis as submitted) This is not persuasive, as it is the examiner’s position that rather than simply determining its classification, the structure of the stainless steel and its alloy type are more accurately one-to-one correspondent. It is the composition of the stainless steel that enables the *promotion* of the alloy type. (emphasis added) For example, the Handbook states that “[m]odifications in composition are sometimes made to facilitate production...” and “basic compositions are altered to make it easier to produce stainless steel tubing and castings.” See col. 3 on page 1. Additionally, applicant’s assertion that the various grades of steel are primarily classified by their microstructure is considered merely indicative of these various types having some degree of coextensivity. Refer to the notoriously known Schaeffler diagram.

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Arguments drawn to Hornung et al. allegedly containing no iron appears to assert that a substantial portion of the compositions disclosed by the patentees are excluded from the scope of the invention disclosed, insofar as the disclosed iron-based main component allegedly contains no iron, in contradiction to the term iron-based. This argument is not persuasive. See col. 2 lines 10-14, wherein the patentees specifically disclaim that use of iron as the main component “cannot be defined by percent indications, but rather is regarded relative to the other components.” Indeed, col. 2 line 8 specifically states that the Fe (iron) content is used as a “remainder to 100% weight”.

As to Hornung et al. not disclosing with any specificity the use of an alloy comprising a combined Cr-Ni content of greater than 50%, while Hornung et al. may express a preference for nickel at the preferred 26 % by weight and chromium at 16.5% by weight, at the same time the patentees provide motivation for the skilled artisan (by way of specific example) to focus on weight percentages at the top of the “preferred” range (46.5 and 40.5 wt. %, respectively) and to explore weight percentages above that range. Additionally, the Handbook as cited by applicant is an additional motivation—modifications in composition are made to facilitate production. (ib.) As to applicant’s alleged benefit of a reduced amount of Cr corrosion, it is noted that Hornung et al. is similarly drawn to reduced corrosion of the disclosed steel alloy material. See col. 1 line 9.

With respect to the prior art interpretation of a 0.02 wt. % of nitrogen being readable on the claimed “zero” amount, applicant submits that this interpretation of the prior art would similarly apply to a metal alloy of 0.2% also having a nitrogen content of zero when also rounded to the nearest whole number. While the examiner acquiesces with this reasoning, it must be asserted that interpreting a 0.02 wt. % of nitrogen as being readable on applicant’s

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claimed “zero” amount is considered reasonably to the extent that a zero amount of nitrogen has a *zero amount of significant figures*. (emphasis added) It could be argued that a zero amount is not even a number *per se*. Thus, Hornung et al.’s teaching of a 0.02 wt. % of nitrogen is maintained as being readable on a zero amount. Regarding the surprising and unexpected benefit of a zero content of nitrogen, this argument appears to be premised on any critical differences that may be present between a prior art teaching of 0.02 wt. % nitrogen and applicant’s claimed zero amount of nitrogen. However, this comparison is not persuasive in view of Hornung et al. being maintained as teaching or at least suggesting a zero amount thereof.

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hornung et al. in view of Koncar et al. (U.S. Pat. 5,942,347).

Arguments against the Koncar et al. patent appear to be directed to this reference failing to remedy alleged differences between Hornung et al. and the present claims. However, in view of Hornung et al. being maintained for the reasons discussed above, the rejection in view of the Koncar et al. is subsequently maintained for the reasons discussed in the prior Office action.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application

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claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-17 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,723,462 B2 (hereinafter the '462 patent), in view of Kanter (U.S. Pat. 3,754,899).

The rejection is maintained for the reasons of record. Applicant's arguments have been fully considered, however they are not found persuasive.

Applicant submits that the differences in temperature operation between PEM fuel cells (such as employed by the 462 Patent) are lower than temperatures in the order of 1000°C disclosed by Kanter. This is not persuasive, as the temperature disclosed by Kanter is a temperature of *manufacturing* during the alloying process. (emphasis added) See col. 5 line 64

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et seq. Notwithstanding, the latent benefits of having a zero amount of nitrogen in the alloy, such as enhanced boron solubility in the metal alloy, *inter alia*, are considered prevalent even during the lower temperature operation of a fuel cell.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



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